10.0 Mitigation Measures

This new **Section 10** is a summary of all mitigation measures, prescribed ESA's and any other conditions pursuant to CEQA and NEPA, committed to in previous sections of the document. Section references citing where each commitment is discussed are included as well.

(**Section 5.I**)

1. Redwood Tree Replacement-To meet the recommended mitigation measures contained in the 1997 Visual Assessment Report which call for redwood trees to be replaced at a 3:1 ratio, approximately 600 redwoods will be required. The size of the trees is 15-gallon size. Though the areas available for replanting are limited, it has been determined that redwoods can be distributed at certain points along the straightaway segments of the project. The remaining redwoods needed to achieve an overall replacement ratio of 3:1 will be distributed at the interchanges within the project area, and along other straightaway segments of Highway 101 to the south of but outside the immediate project area.
2. Special sound wall construction techniques will be employed that will avoid having to remove other nearby trees. This means that within the groups of redwoods (or other species), trees that are inside the required 1-meter lear zone will be removed while others within the same group, but beyond 1 meter from the new sound wall, will remain. The lower limbs of the remaining trees will be trimmed to a height approximately equal to the height of the new walls (3.6 to 4.2 meters) to allow construction access.
3. Setback requirements for new plantings call for trees to be no closer than 9 meters from the edge of the traveled way. The edge of the traveled way is usually indicated on the pavement surface with a solid white line along the right side of the right (outermost) lane and does not include the shoulder.
4. In addition to limited space, other factors constrain the placement of trees within the highway right-of-way. A shallow drainage ditch runs most of the way along each side of the roadway to collect and remove storm water from the paved surface. The drainage ditch must be kept clear of trees and shrubs. A number of large, outdoor advertising signs (billboards) occur on private property at various places adjacent to the highway. In conjunction with permits issued by Caltrans relating to such signs, vegetation within the highway right-of-way is managed so as to provide approximately 150 meters of relatively clear sight distance that allows visibility of the sign by approaching motorists. Planting tall trees within these zones will be avoided where practical.
5. In most cases, sound walls will be built near the edge of the right-of-way, approximately 0.3 meters (1.0 feet) inside the existing chain-link fence.
6. There will be a separate mitigation program for replacing oak trees affected by the project (See **Section 5.IV**).
7. Vines, trees and shrubs will be planted for screening the soundwalls from highway views and to deter graffiti. Screening will reduce the visual impacts associated with the soundwalls.
8. Soundwall construction method planning will consider the need for tree root system protection and sensitive pruning to save as many trees/shrubs as possible.
9. To reduce the overall visual impact, mitigation will consist of planting upgrades to the interchanges within the proposed project area. Additional planting of trees, shrubs, and groundcover in the form of standard highway planting at the interchanges will visually strengthen and enhance the corridor, reducing visual impacts.
10. Oak trees that must be removed will be replaced at a 3:1 ratio as noted in **Section 5.IV**. Redwood trees will be replaced along the guidelines detailed above.

(Section 5.III)

11. The Special Provisions and Standard Specifications will include requirements to minimize or eliminate dust through the application of water or dust palliatives.

(Section 5.IV)

12. All work to be done within Laguna De Santa Rosa Creek would occur during the construction window as required by the Department of Fish and Game permit.

13. To insure project impacts avoidance, resource agencies require a Caltrans fisheries biologist to inspect the site prior to dewatering activities and construction.

14. Vehicle and foot traffic will be restricted near trees to be saved. Contractors will try to perform major construction during in the summer when the soil is dry and less likely to be compacted.

15. No asphalt, gravel, fill soil, machinery or other material will be stored near the trees to be preserved.

16. If pruning is required due to construction related activities, it must be carried out under the supervision of a qualified arborist. Ditch relocation and trenching near the root zone should be avoided. If these activities jeopardize the survival of the trees, then they must be counted as loss and mitigated for.

17. Ditch relocation and trenching near the root zone will be avoided.

18. Pile type foundations are proposed in construction of soundwalls in areas where there are trees.

19. Where the existing trees to be preserved impose an equipment access problem, they will be fenced off to prevent damage.

20. After construction is completed, lost oak trees will be replaced in accordance with the Oak Tree Replacement Plan. See Section 5.I for Redwood Tree replacement plans. Landscape mature trees will be replaced with drought tolerant native shrubs that persist under existing conditions and require minimum maintenance. Shrub species will also be planted along the reconstructed ditch bank where there is adequate space. A high planting density will be employed to compete against invasive weeds and to stabilize the reconstructed ditch bank. Nursery grown cuttings and seedlings developed from local genetic stocks should be used for speedy plant establishment. Transplanting activities will be carried out during winter months to insure transplants can benefit from winter rainfall. A contractor who is familiar with plant propagation and habitat establishment will carry out transplanting**.**

21. Oak Tree Replacement Plan -Although the proposed project was designed to minimize the destruction of oak trees, 87 oak trees are estimated to be removed. Approximately 1.74 acres of land would be needed for oak replacement at a minimum ratio of 3:1 and at a rate of 150 trees to 1 acre of mature oak habitat. One potential mitigation site has been identified (See **Exhibit 5-IV.b(i) & 5-IV.b(ii)**) near the Mendocino off-ramp on northbound 101. This site has limited development value and merges with an existing mature stand of oak trees on the north side and a previous oak tree mitigation site on the south side**.**

22. For oak replacement, acorns will be collected from local ecotypes for both direct field planting and nursery grown seedlings. Seedlings should be planted during the rainy season (December to February) when the soil is moist. Watering right after transplantation is essential, this will ensure adequate moisture and air pockets substitution. If water is accessible, deep irrigation during summer can also reduce the possible drought damage. Irrigation shall cease after the second year unless limited to replants**.**

23. If protective wire cages are used, they shall be monitored and removed to prevent growth obstruction. Other cultivation and maintenance activities including mulching and weeding should be carried out as needed. Weeding or hoeing around the trees should be performed from both inside the screens and to a radius of one meter from any protector.

24. Oak Tree Maintenance and Monitoring -The oak mitigation will be inspected during the early plant establishment period for sprouting success and survival for three years. Percent survival rates and other growth monitoring data will be based on methods commonly used in ecological studies. Monitoring data may include plant density (average number of individuals/unit area), cover of the area covered by a given species, and species composition. Success criteria will be based on the survival rates. Percent survival for years one, two and three are 90, 80 and 70, respectively. Species not meeting the success criteria will be replanted, providing the mortality causes can be identified and corrected prior to replanting. If the causes cannot be identified, another native species with high survival rates will be studied for replacement. Photographs will be taken in the same month each year to assist in evaluation of mitigation success.

25. Wetland Impacts - Creek flows cannot be impeded. The use of water diversion will be needed to insure aquatic habitat protection downstream from the project area. Sandbag barriers will be placed around the construction area within the channel upstream. See Exhibit 5-IV.c.(i). The result should be clean water in and clean water out. Once construction is finished, all project-introduced material (false work, demolition debris, etc.) must be

removed, leaving the creek as it was before construction. Periodic checks by a Caltrans Natural Sciences Unit biologist will be made without notice

26. To mitigate wetland impacts that cannot be avoided or further minimized, widening or reconstruction of the drainage ditches will create new wetland areas. A minimum ratio of 1:1 (.15 ha/.37 acre) is required in order to conform to the ACOE no-net-loss wetland policies. For this purpose upland areas along drainages at Todd Road within the Caltrans R/W, will be graded down to the elevation that will allow soil inundation during the peak of the rainy season. In addition, drainages along Sonoma 101 will be reconstructed as close as possible to the filled site.

27. It is expected that some of the wetland species existing in the area will naturally encroach on the excavated area, i.e. *Typha sp.*, *Juncus sp*. If revegetation is needed, seeds will be collected from the local plants and used for revegetation. If necessary, commercially available plug or peat-potted nursery stock will be used to supplement locally collected specimens. Additional mitigation includes removal of all petroleum products, spoil materials, debris, and exotic broadleaf species after construction is completed. Contractors will try to carry out excavation and construction during summer months, when the drainage channel is dry to reduce excessive siltation of the downstream wetland areas. The wetland areas outside of the construction zone must be fenced off and designated as an environmentally sensitive area (ESA).

28. Reconstructed drainage banks are prone to erosion. Bare ground and disturbed areas will be vegetated with compatible plant species through hydroseeding to reduce soil erosion. Native plant species should be included in the erosion control seed mix. If necessary, other erosion control measures including blankets, matting, and mulching will be used for soil stabilization. Erosion control plans shall meet with approval of the Caltrans landscape architect**.**

(Section 5.VII)

29. Widening of the Route 101 shoulders, soundwall installations and intersection modifications will require the management, treatment, and disposal of impacted soil and groundwater in accordance with State and Federal laws.

30. Contamination of unpaved shoulders within the project area due to aerially deposited lead from vehicle emissions requires special handling (including reuse of the material) in accordance with the Department of Toxic Substances Control (DTSC) Lead Contaminated Soils Variance dated June 7, 1995. With respect to the DTSC variance, soils from the existing unpaved shoulders and medians along Routes 12 and 101 meet extractable and total lead levels such that they can be re-used but will likely have to be placed a minimum of five feet above the water table and covered with at least 2 feet of clean soil.

31. Special provisions covering the implementation of a health and safety plan, the handling, and disposal of the contaminated material will be included in the construction contract.

32. The reuse of aerially deposited lead contaminated soil detailed in embankment #1 and embankment #2 will also be addressed in the SWPPP. The North Coast RWQCB will be notified 30 days prior to advertisement of bids.

- Embankment Site No 1 is located on southbound Route 101 between the freeway and southbound Santa Rosa Ave on-ramp. Approximately 22,300 m3 of lead contaminated material will be placed at this site, capped with 0.6 m (3200 m3) of clean fill from Site No 2.

- Embankment and Borrow Site No. 2 is located at the northwest corner of Farmer's Lane and Hoen Road at the Route 12/ Farmers Lane Interchange. Approximately 36,000 m3 of leaded material from the Route 101 widening project will be stored at this location and 11,100 m3 of this clean material will be removed as fill for the widening project. The site will be contour graded and covered with .6 m (7000 m3) of clean fill from the site.

33. If encountered, UST's and associated piping will be removed in accordance with the requirements of the Sonoma County Environmental Health Department (SCEHD).

(Section 5.VIII)

34. Discharges to waters of the U.S. are regulated under the NPDES permitting program. Construction sites that will disturb 2 or more hectares of soil or that are within a water sensitive area must adhere to the conditions of the statewide Caltrans NPDES Permit CAS #000003, Order #99-06-DWQ, issued by the State Water Resources Control Board (SWRCB). Adherence to the compliance requirements of the NPDES General Permit CAS #000002, Order #99-08-DWQ, for General Construction Activities is also required.

35. Standard Special provision 7-345 will be included in the PS & E to address water pollution control and Storm Water Pollution Prevention (SWPPP) requirements. The contractor will prepare and will implement best management practices during the construction period

36. The reuse of aerially deposited soil detailed in embankment #1 and embankment #2 will also be addressed in the SWPPP. The North Coast RWQCB will be notified 30 days prior to advertisement of bids..

37. Development and proper implementation of the SWPPP, as required under the Caltrans District 4 NPDES permit, will contain erosion-control measures following Caltrans Standard Specifications. The measures will minimize potential for construction-related impacts. Both temporary and permanent erosion controls will be incorporated into the project.

38. A section 401 Water Quality Certificate would be required from the San Francisco Bay Regional Water Quality Control Board to ensure that water quality standards will not be violated.

39. Proper control and containment of on-site hazardous materials will be covered by management practices in the SWPPP. Such management practices will include secondary containment surrounding any fueling facilities and operations at the proposed project site or conducting equipment fueling and maintenance away from the proposed project location.